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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,884	09/21/2006	Daisaku Matsunaga	576P092	5473
42754 7590 11/30/2009 Nields, Lemack & Frame, LLC 176 E. Main Street Suite #5 Westborough, MA 01581				
EXAMINER				
HON, SOW FUN				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
11/30/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/593,884

Applicant(s)

MATSUNAGA ET AL.

Examiner

SOPHIE HON

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Response to Amendment

Withdrawn Rejections

1. The 35 U.S.C. 103(a) rejections of claims 1-3 over David-Gillian as the primary reference are withdrawn due to Applicant's amendment dated 6/30/09.

New Rejections

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mi (US 20030197821) in view of Yaroschuk (US 6,822,713).

Regarding claim 1, Mi teaches a retardation element (compensator 300, [0020]) comprising a substrate 10 and an orientation layer 20 which is oriented by photo-alignment ([0021]) which is ordinarily a thin film layer of a photoactive polymer, wherein the thin film orientation layer 20 is formed on the substrate 10 and a birefringence layer 30 (anisotropic layer 30, [0021]) is formed so as to contact with said thin film orientation layer 20 wherein axes of birefringence molecules of said birefringence layer 30 is oriented in a micropattern form which is controlled by orientation of the thin film orientation layer of photoactive polymer (the orientation layer 20 is treated by linear polarized light and subsequently aligns the anisotropic layer 30, [0021]). Mi fails to

specify that the photoactive polymer of the thin film orientation layer has photoactive groups such that the axes of the photoactive groups are oriented in a micropattern form such that axes of birefringence molecules of said birefringence layer are oriented in a micropattern form which is controlled by orientation of the axes of said photoactive groups.

However, Yaroschuk teaches a retardation element comprising a substrate, a thin film layer of a polymer having photoactive groups wherein the thin film is formed on the substrate (optical compensation film, column 2, lines 3-8) and the axes of the photoactive groups are oriented in a micropattern by photo orientation treatment (irradiation of the films of azopolymer 1 with polarized light provided planar alignment of the azobenzene fragments in the direction perpendicular to the UV light polarization featuring high in-plane birefringence .. The photosteady structures observed in both polymers were uniaxial, column 6, lines 15-26). Yaroschuk teaches that the thin film layer can be simultaneously used as an orientation layer (alignment layer, column 15, lines 59-63).

Therefore, since Mi is silent regarding the specifics of the photoactive polymer of the thin film orientation layer, it would have been necessary and hence obvious to have looked to the prior art for suitable types. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the photoactive polymer of the thin film orientation layer of the retardation element of Mi, with photoactive groups such that the photoactive groups are oriented in a micropattern form by the photo orientation treatment, such that axes of birefringence molecules of the

birefringence layer are then oriented in a micropattern form which is controlled by orientation of the axes of the photoactive groups, as taught by Yaroschuk.

Regarding claim 2, Yaroschuk teaches that the photoactive group is at least one group selected from a group consisting of non-aromatic N=N (Example 1, column 7, lines 17-45) and non-aromatic C=C (Example 2, column 8, lines 50-65).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mi in view of Yaroschuk as applied to claims 1-2 above, and further in view of Matsunaga (US 6,541,185).

Mi, as modified by Yaroschuk, teaches the retardation element comprising the thin film orientation layer of a polymer having photoactive groups, as described above. Mi, as modified by Yaroschuk, fails to teach that the polymer having photoactive groups is a liquid crystalline polymer.

However, Yaroschuk teaches that the thin film orientation layer can consist of a polyimide resin containing photoactive azobenzene, stilbene or cinnamate groups in the side and main polymer chain (column 2, lines 57-63) which can be liquid crystalline depending on the rigidity of the groups in the main polymer chain.

Matsunaga teaches that a thin film orientation layer (column 5, lines 15-25) preferably consists of a liquid crystalline polymer that is a polyimide resin (column 3, lines 60-67) containing photoactive groups (column 8, lines 55-60) for the purpose of utilizing the highly orienting property of the liquid crystalline polymer (column 5, lines 15-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided a liquid crystalline polyimide resin as the polyimide resin containing photoactive groups in the thin film orientation layer in the retardation element of Mi, as modified by Yaroschuk, in order to obtain the desired high orientation, as taught by Matsunaga.

Response to Arguments

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

5. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample, can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/

Sow-Fun Hon

Examiner, Art Unit 1794